The NFPA Diamond: At LaRC the NFPA Diamond is required on secondary chemical containers (e.g. squeeze bottles, safety cans, etc.). The Diamond provides a general idea of the hazards posed by the material and severity of these hazards as they relate to handling, fire prevention, exposure, and control.

Health Hazard

Degree of Potential Injury from Exposure

(Blue Diamond)

4 - DEADLY: Short exposure may cause death or major injury

3 - EXTREMELY DANGEROUS: Avoid skin contact and inhalation.

2 - HAZARDOUS: Prolonged exposure may be harmful.

1 - CAUTION: Causes irritation or minor injury.

0 - Creates no unusual hazard.

Fire Hazard

Degree of Susceptibility of Materials to Burning

(Red Diamond)

4 - EXTREMELY DANGEROUS: Highly Flammable liquids and explosive gases. Flash Point below 73 degrees Fahrenheit.

3 - HAZARDOUS: Ignites at room temperature. Flash Point between 73 - 99 degrees Fahrenheit.

2 - WARNING: Ignites with moderate heat. Flash Point between 100 - 200 degrees Fahrenheit.

1 - Must be preheated to burn. Flash Point above 200 degrees Fahrenheit.

0 - Will not burn.

Reactivity

Degree of Susceptibility of Materials to Release Energy

(Yellow Diamond)

4 - EXTREMELY DANGEROUS: Explodes at room temperature.

3 - DANGEROUS: Explodes with exposure to heat, shock, or when mixed with water.

2 - HAZARDOUS: Normally unstable. May have violent chemical change when mixed with water.

1 - CAUTION: May become unstable when heated or mixed with water.

0 - Normally stable at all temperatures. Not reactive with water

Special Precautions

Symbols specified in National Fire Codes, section 704

W - Material shows unusual reactivity with water

OX - Material possesses oxidizing properties.

Other symbols commonly used

ACID - Material is an acid.

ALK - Material is a base (alkaline).

COR - Material is corrosive.

☢ - Material is radioactive.

-The field may also be left blank if no special hazards are present.

For additional information or assistance, call the Safety and Facility Assurance Office (SFAO) Industrial Hygienist (IH) Staff

Patricia Cowin (48664)
Carter Ficklen (43205)
Roger Johnston (43208)

or call 4SAFE (47233).

At LaRC
Safety's First!

HAZARD COMMUNICATION

Hazardous Material

is classified as any material that can cause harm to people or the environment

Types of Hazardous Materials

Corrosive - *burns skin or eyes on contact*

Explosive - *BOOM!*

Flammable - *catches fire*

Radioactive - *radiation emitting materials*

Reactive - *burns, explodes, or releases toxic vapors if exposed to other chemicals, heat, air, or water*

Toxic - *causes illness or possibly death*

Read it before you need it.

Why are MSDSs so important?

- MSDSs provide people with information on the health hazards of chemicals in their workplace.

- They provide guidance on the safe use and storage of these potentially dangerous chemicals.

- MSDSs also have information for emergency response personnel in the event of a fire or spill.

LaRC MSDS "Quick Facts"

- LaRC requires that MSDSs be readily available to employees for all chemicals & hazardous materials.

- The maintenance, location and set up of MSDS files are the responsibility of Facility Safety Heads.

- For all chemicals & hazardous materials requested from LaRC supply stock, MSDSs will be forwarded by supply personnel.

- For all chemicals & hazardous materials not in the stock system, MSDSs must be obtained from the manufacturer of the product and forwarded to the Environmental Management Office for entry into the Chemical Material Tracking System (CMTS).

- There are also a number of web sites where you can find MSDSs. The LaRC CMTS is one site. Additional links to free MSDS resources can be found at: http://www.ilpi.com/msds/#Internet

- The purchase of all chemicals & hazardous materials requires approval using a NASA Langley Form 44 or 44A. This is an automated process accomplished "on-line" at http://osemant1.larc.nasa.gov/cmts/. For detailed information see LAPG 1710.12 "Potentially Hazardous Materials."

Introduction

Material Safety Data Sheets (MSDSs) are the basis of the employer's hazard communication program. Employers must have at their workplace the MSDS for each chemical & hazardous material they use. It is the responsibility of the chemical manufacturer or importer to evaluate and compile all the hazard information known about the chemicals they produce. The MSDS used in an employer's hazard communication program must be specific to each chemical used on-site.

ELEMENTS of the MSDS

CHEMICAL INFORMATION

This section identifies the chemical described in the MSDS. The manufacturer's name, address, and emergency telephone number are provided should you need further assistance.

HAZARDOUS INGREDIENTS

Outlined here are the hazardous ingredients that make up the chemical. Threshold Limit Value (TLV) and/or Permissible Exposure Limit (PEL) are listed to indicate airborne concentration levels of the ingredients that most individuals can safely be exposed to in an 8-hour period without adverse health effects.

PHYSICAL/CHEMICAL CHARACTERISTICS

This section tells you whether the material is a solid, liquid, or gas. It also provides other useful information such as odor, solubility in water, melting and boiling temperatures, whether it is heavier or lighter than air, and how readily it evaporates.

FIRE/EXPLOSION HAZARD DATA

This section indicates the chemical's potential to catch fire or explode. The information listed includes the lowest temperature at which the chemical can release enough flammable vapor to ignite (flash point), the proper types of extinguishing media and special fire fighting procedures.

ELEMENTS of the MSDS (Continued)

REACTIVITY DATA

This section describes incompatible materials and conditions to avoid. Environmental conditions such as changes in temperature, direct sunlight, and exposure to air or water may cause reactive chemicals to breakdown or combine to produce toxic or flammable substances. Consult this section when choosing storage procedures.

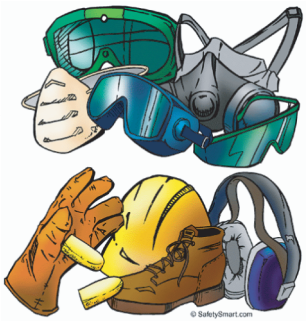
HEALTH HAZARD DATA

This section explains how the chemical enters the body (inhalation, ingestion, injection, and skin absorption) and the acute (immediate) and chronic (long-term) signs and symptoms of overexposure. Preexisting medical conditions that may be aggravated through exposure are noted. Emergency and first aid procedures are listed.

SPILL AND LEAK PROCEDURES

Discussed in this section are the procedures to follow upon accidental release or spill, including the proper course of corrective action. At LaRC, any spill and/or leak shall be immediately reported to the Facility Safety Head (FSH) & Emergency Dispatch Officer (911).

CONTROL MEASURES



Information as to what kind of protective measure must be taken is listed in this section. It will indicate whether ventilation is required and what type of personal protective equipment, such as gloves, goggles, aprons, and respirators, should be worn. When in doubt, contact your supervisor, FSH, and/or the SFAO IH staff.

SPECIAL PRECAUTIONS

This section describes any further storage, handling, health, or safety precautions not discussed in any previous section of the MSDS. For example, safety signs that should be posted near the chemical area may be listed. Notify FSH if the MSDS conflicts with LaRC policies and refer any questions to the SFAO IH staff.